



Government Contracting—Geothermal

U.S. Army's Aberdeen Proving Ground

Aberdeen, Maryland



HIGHLIGHTS

- 20-year maintenance agreement
- Building envelope improvements to reduce energy usage and costs
- Guaranteed savings for 20 years
- Annual measurement and verification of savings

CUSTOMER PROFILE

Aberdeen Proving Ground (APG) is the Army's oldest active proving ground. It opened on October 20, 1917, six months after the U.S. entered World War I, to provide the military with a facility for the design and testing of ordnance material in close proximity to the nation's industrial and shipping centers. As a center for Army material testing, laboratory research and military training, the post is a key element in the nation's defense. APG occupies more than 72,500 acres in Harford County, Maryland and is home to more than 60 tenants and a host of satellite activities.

PROJECT DESCRIPTION

APG had two compelling needs: Replace the failing, inefficient air-to-air heat pumps in its Bayside Village and Patriot Village military family housing units, and meet the goals set by Executive Order 13123 "Greening the Government through Efficient Energy Management." The order set new goals for energy efficiency, increased use of renewable energy resources and reduction of emissions related to energy use in all U.S. Government buildings.

Constellation Energy Projects & Services Group, one of five companies selected by the U.S. Department of Energy (DOE) to manage its geothermal retrofit program for federal facilities, concluded through its comprehensive evaluation of military

housing energy needs that geothermal heat pumps were the most economical and energy-efficient solution. Using the Federal Geothermal Energy Savings Performance Contract (ESPC), Constellation provided the financing and installation of 643 energy efficient geothermal heat pumps. At no additional cost to the Government, Constellation identified additional opportunities for energy savings which led to the installation of de-superheaters for existing domestic water heaters adjacent to the newly installed heat pumps and building envelope improvements.

TECHNICAL SPECS

- 643 heat pumps, 1.5 tons to 3 tons
- Vertical closed loop ground heat exchangers
- Each heat pump has a dedicated ground loop
- Approximately 42,000 feet of horizontal trenches and 257,000 feet of vertical bores
- De-superheaters for domestic hot water

In addition to improving the comfort, safety and efficiency of housing heating systems, Aberdeen Proving Ground expects to reduce its annual energy usage by more than 8,600,000 kWh, resulting in savings of at least \$600,000 per year over the life of the 20-year contract. These reductions are equivalent to saving 785,000 gallons of gasoline per year, planting 2,500 acres of trees or taking more than 1,200 cars off the road.

FINANCING ARRANGEMENTS

In its 20-year service contract—with a structured payment plan that ensures a positive cash flow to the Government and guarantee that energy savings will cover all costs over the life of the contract—Constellation assumed responsibility for all maintenance, repairs and replacements.

CONTACT INFORMATION

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Constellation Energy Projects & Services Group is a full-service energy consultant, providing customized energy solutions exclusively to government and large commercial and industrial customers. Applying superior energy knowledge, engineering expertise, new technologies and proven procurement mechanisms to a variety of energy challenges, Constellation Energy Projects & Services Group serves clients with single and multiple locations throughout North America. The company's extensive array of products and services—utility infrastructure outsourcing (electricity, chilled water, heating), mechanical/electrical upgrades, utility data mining, and performance contracting—are all designed to increase energy efficiency, reliability, cost effectiveness and savings. Its Constellation Building Systems division provides services that include building control systems, mechanical construction, and equipment retrofits.

Constellation Energy Projects & Services Group is a member of Constellation Energy (www.constellation.com), a Fortune 500 company whose combined revenues in 2003 totaled \$9.7 billion.